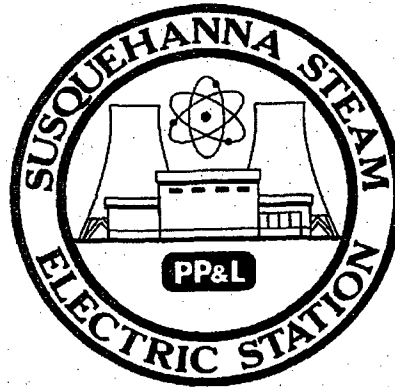

**Attachment 36 to PLA-6219
1986 Annual Environmental Operating Report
(Non-radiological). April 1987**

(NRC Document Request 86)

SUSQUEHANNA STEAM ELECTRIC STATION UNITS 1 & 2

1986
ANNUAL ENVIRONMENTAL
OPERATING REPORT
(NONRADIOLOGICAL)



FACILITY OPERATING LICENSE NOS. NPF-14 & NPF-22
DOCKET NOS. 50-387 & 50-388

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SUSQUEHANNA STEAM ELECTRIC STATION

ANNUAL ENVIRONMENTAL OPERATING REPORT
(NONRADIOLOGICAL)

1986

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FOREWORD

The Susquehanna Steam Electric Station (Susquehanna SES) consists of two boiling water reactors, each with a net electrical generating capacity of 1,050 megawatts. The site is approximately 1,325 acres and is located in Salem Township, Luzerne County, Pennsylvania approximately five miles northeast of Berwick, Pennsylvania. Under terms of an agreement finalized in January 1978, 90% of the Susquehanna SES is owned by the Pennsylvania Power and Light Company (Licensee) and 10% by Allegheny Electric Cooperative, Inc.

The 1986 Annual Environmental Operating Report (Nonradiological) for Units 1 and 2 describes the programs necessary to meet requirements of Section 2F of the Operating License, Protection of the Environment, and Appendix B, Environmental Protection Plan, as well as commitments in the Final Environmental Statement related to operation (NUREG-0564), June 1981. Also, the Operating License, Appendix A, Technical Specifications requires an Annual Radiological Environmental Operating Report which is issued separately from this report.

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T A B L E O F C O N T E N T S

SUSQUEHANNA STEAM ELECTRIC STATION ANNUAL ENVIRONMENTAL OPERATING REPORT 1986

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE NO.</u>
	Foreword	i
	Table of Contents	ii
1.0	Objectives	1-1
2.0	Environmental Issues	2-1
2.1	Aquatic Issues	2-1
2.2	Terrestrial Issues	2-2
2.2.1	Monitoring Bird Impaction on Cooling Towers . . .	2-2
2.2.2	Operational Sound Level Survey	2-2
2.2.3	Maintenance of Transmission Line Corridors	2-3
2.3	Cultural Resources Issues	2-3
3.0	Consistency Requirements	3-1
3.1	Plant Design and Operation	3-1
3.2	Reporting Related to NPDES Permits and State Certifications	3-1
3.3	Changes Required for Compliance with Other Environmental Regulations	3-1
4.0	Environmental Conditions	4-1
4.1	Unusual or Important Environmental Events	4-1
4.2	Environmental Monitoring	4-1
4.2.1	General Monitoring for Bird Impaction	4-1
4.2.2	Maintenance of Transmission Line Corridors	4-3

T A B L E O F C O N T E N T S

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE NO.</u>
4.2.2.1	Herbicides Used	4-3
4.2.2.2	Records	4-4
4.2.2.3	Types of Maintenance Reported	4-4
4.2.3	Aquatic Programs	4-5
4.2.3.1	Algae	4-5
4.3.3.2	Benthic Macroinvertebrates	4-9
5.0	Administrative Procedures	5-1
5.1	Review and Audit	5-1
5.2	Records Retention	5-1
5.3	Changes in Environmental Protection Plan	5-1
5.4	Plant Reporting Requirements	5-1
5.4.1	Routine Reports	5-1
5.4.2	Nonroutine Reports	5-1
	Exhibits	<u>NO.</u>
	American Shad Impingement Survey Results	1

T A B L E S

<u>Number</u>	<u>Title</u>
4.2-1	Species of birds collected at the Unit 1 and 2 cooling towers, 1978-86
4.2-2	Bird impaction totals from Unit 1 and 2 cooling towers, 24 March-6 June 1986
4.2-3	Bird impaction totals from Unit 1 and 2 cooling towers, 18 August-7 November 1986
4.2-4	Maintenance of transmission line corridors, selected herbicide applications
4.2-5	Maintenance of transmission line corridors
4.2-6	Mean density of periphytic algae at SSES, 1986
4.2-7	Mean density of periphytic algae at Bell Bend, 1986
4.2-8	Mean density of periphytic algae at Bell Bend I, 1986
4.2-9	Species of periphytic algae at SSES, Bell Bend, and Bell Bend I, 1986
4.2-10	Average density and relative abundance of periphytic algae at SSES, Bell Bend, and Bell Bend I, 1977-86
4.2-11	Density of phytoplankton at SSES, 1986
4.2-12	Density of phytoplankton at Bell Bend, 1986
4.2-13	Density of phytoplankton at Bell Bend I, 1986
4.2-14	Average density and relative abundance of phytoplankton at SSES, Bell Bend, and Bell Bend I, 1977-86.
4.2-15	Species of phytoplankton at SSES, Bell Bend, and Bell Bend I, 1986
4.2-16	Description and location of benthic macroinvertebrate sampling sites, 1986
4.2-17	Density and percent total of benthic macroinvertebrates at SSES I, Bell Bend III, and Bell Bend IV, 1986
4.2-18	Benthic macroinvertebrates collected at SSES I, Bell Bend III, and Bell Bend IV, 1986
4.2-19	Dry weight and percent total of benthic macroinvertebrates at SSES I, Bell Bend III, and Bell Bend IV, 1986

F I G U R E S

<u>Number</u>	<u>Title</u>
4.2-1	Sampling sites at SSES and Bell Bend, 1986
4.2-2	Total number of impacted birds at Unit 1 and 2 cooling towers, 1978-86
4.2-3	Standing crop of periphytic algae at SSES, Bell Bend I, and Bell Bend, 1977-86
4.2-4	Standing crop of phytoplankton at SSES, Bell Bend I, and Bell Bend, 1977-86
4.2-5	Annual mean biomass and density of benthic macroinvertebrates at SSES and Bell Bend, 1975-86
5.1-1	Auditing organizational chart

1.0 OBJECTIVES

The Licensee submitted an Environmental Report-Operating License Stage for the Susquehanna SES to the U.S. Nuclear Regulatory Commission (NRC) in May, 1978. This report reviewed the results of the preoperational impacts of construction and described the preoperational and proposed operational environmental monitoring programs. The NRC and other agencies reviewed this report and made recommendations for operational environmental monitoring programs which were listed in the Final Environmental Statement (FES) related to the operation of the Susquehanna SES, Unit 1 and 2, NUREG-0564, June 1981. In addition, the Licensee has developed procedures and guidelines to ensure that operation of the Susquehanna SES does not adversely affect the environment in the vicinity of the station.

The Licensee has developed procedures for environmental responsibilities and interfaces necessary in monitoring environmental impacts. This includes coordination of NRC requirements and consistency with other federal, state, and local requirements for environmental protection. To keep the NRC informed of other agency activities, the NRC is being provided copies of environmental correspondence. In addition, this 1986 Annual Environmental Operating Report (Nonradiological) provides a summary of both operational environmental programs and procedures as required in the FES and Appendix B, Environmental Protection Plans (EPP) of the Operating License, No. NPF-14 (Ref. 1.1-1) and No. NPF-22 (Ref. 1.1-2).

This 1986 report is the fifth Annual Environmental Operating Report (Nonradiological) submitted to meet EPP requirements. The 1985 report was submitted to the NRC in April 1986 (Ref. 1.1-3).

REFERENCES

- 1.1-1 Facility Operating License No. NPF-14, Susquehanna Steam Electric Station, Unit 1, Appendix B, Environmental Protection Plan (Non-Radiological), July 17, 1982.
- 1.1-2 Facility Operating License No. NPF-22, Susquehanna Steam Electric Station, Unit 2, Appendix B, Environmental Protection Plan (Non-Radiological), March 23, 1984.
- 1.1-3 Susquehanna Steam Electric Station, Unit 1 and 2, 1985 Annual Environmental Operating Report (Nonradiological), Pennsylvania Power and Light Company, Allentown, Pennsylvania, April 1986.

2.0 ENVIRONMENTAL ISSUES

2.1 AQUATIC ISSUES

The aquatic monitoring program for the operation of the Susquehanna SES is divided into two phases. Phase 1 includes effluent monitoring required by a National Pollutant Discharge Elimination System (NPDES) permit issued by the Pennsylvania Department of Environmental Resources (Pa. DER). Monthly discharge monitoring reports are submitted to the Pa. DER as part of the permitting requirements. The station operational NPDES permit No. PA-0047325 was reissued January 22, 1985 and is valid for a period of five years. Phase 2 of the aquatic monitoring program deals with programs listed in the FES involving aquatic environmental biological monitoring.

The Pa. DER in Phase 1, is responsible for regulating the water quality permit for the Susquehanna SES. The NPDES permit No. PA-0047325 deals with discharge parameters for the Susquehanna SES sewage treatment plant, the cooling tower blowdown (including in plant process streams) which discharges to the Susquehanna River, and also various sumps and drains that discharge through storm sewers into Lake Took-a-while, and eventually the Susquehanna River. The parameters included in the sewage treatment plant effluent limits are as follows:

- Flow
- pH
- Total Suspended Solids (TSS)
- Biochemical oxygen demand (BOD-5)
- Chlorine residual
- Fecal coliforms

In-plant process effluents combine with the cooling tower flows before being released to the Susquehanna River. These process effluents are monitored for flow, TSS, and the oil and grease. Parameters monitored in the combined cooling tower blowdown to the Susquehanna River are:

- Flow
- pH
- Chlorine residual
- Chromium
- Iron
- Zinc

The parameters monitored in the various sumps and drains that discharge to storm sewers leading to Lake Took-a-while are:

- Flow
- pH
- TSS
- Oil and grease

Phase 2 of aquatic monitoring programs committed to by the Licensee in the FES and Appendix B of the Operating License for the Susquehanna SES includes monitoring algae and benthic macroinvertebrates, both above the intake and below the discharge. This information is summarized in Section 4.2.3 of this report.

The Susquehanna River Anadromous Fish Restoration Committee, of which the Licensee is a member, continued the American shad restoration project in the Susquehanna River during 1986. The Central Pennsylvania Chapter of the American Fisheries Society reported a record return of American shad to the Susquehanna River (Ref. 2.1-1). The catch of returning shad at the Conowingo Dam transfer facility was 5,193 in 1986 as compared to an annual average of less than 400 fish per year from 1972-1985. A total of about 4,200 shad were successfully released above all dams at Harrisburg. Some of these fish were radio-tagged and subsequently tracked in the Juniata River to Lewistown and in the northern branch of the Susquehanna as far north as Beach Haven.

In addition to the fish from Conowingo Reservoir, approximately 5,800 prespawed adult American shad were collected from the Hudson River during May, 1986 and transported to the northern branch of the Susquehanna River (Ref. 2.1-2). Of the number collected, approximately 5,000 survived the transfer. These fish were held in a net in the river at the Susquehanna SES Biological Laboratory by the Licensee's biological consultant Ecology III, Inc., for several days prior to discharge in order to acclimate them to the Susquehanna River.

An impingement study for American shad was undertaken in 1986, as in previous years in response to a request by the U.S. Fish and Wildlife Service Commission. This study meets commitments in Section 5.3.4, Aquatic Monitoring, of the FES (Ref. 2.1-3). Between 2 September and 16 October, personnel from Ecology III, Inc., monitored fish impingement on the station intake screens. No juvenile American shad were identified in the fish collected on the screens during this period (Exhibit 1).

2.2 TERRESTRIAL ISSUES

2.2.1 MONITORING BIRD IMPACTION ON COOLING TOWERS

Consultant biologists conducted systematic searches for impacted birds at the Unit 1 and 2 cooling towers of the Susquehanna SES in 1986 during spring and autumn migrations. Fifty-two birds of 21 species were collected; seven birds were found in the spring and 45 in the autumn. Almost all collected birds (88%) were small passerines known to be nocturnal migrants. Most birds collected in 1986 (83%) probably impacted on a tower when it was not operating. More impacted birds were collected in 1986 than in any other operational phase year, but fewer than in any preoperational year. Thus far, the data indicate that operation of the cooling towers may deter bird impaction. However, the observed decline in bird impaction since the start of tower operation may not be as pronounced as the data indicate because tower operation inhibits specimen retrieval and may bias the collection data.

2.2.2 OPERATIONAL SOUND LEVEL SURVEY

An environmental sound survey was completed in 1985, after the first year of on-line operation for each of the two reactor units as required in FES Section 5.3.5, Terrestrial Monitoring Program.

2.2.3 MAINTENANCE OF TRANSMISSION LINE CORRIDORS

The maintenance program for transmission line corridors for the Susquehanna SES is discussed in detail in Subsection 4.2.2 of this report. During 1986, there was maintenance of transmission line corridors by the use of herbicides and by manual clearing. The terrestrial monitoring program for the Susquehanna transmission lines was initiated in response to commitments in Section 5.3.5 of the FES. The three transmission lines associated with the Susquehanna SES are the Stanton-Susquehanna No. 2-500 kV Line, Sunbury-Susquehanna No. 2-500 kV Line and the Susquehanna-Wescosville 500 kV Line. Originally, the Susquehanna-Wescosville 500 kV Line was called the Susquehanna-Siegfried Line. These lines may be operated at either 230 kV or 500 kV.

After their construction, areas around the transmission structures and along access roads were seeded and regraded to prevent soil erosion. The schedule for conducting periodic erosion control inspections of these lines and access roads is based on the age of the line. During the first five years, helicopter patrols will be conducted three times a year. Thereafter, foot-patrols will be conducted every two years and overhead patrols conducted every five years. The dates of patrols and the information collected are logged and recorded by the Licensee, which is responsible for this activity.

In 1986, the three transmission lines were inspected by helicopter patrol and no adverse impacts were reported. However, there was a concern about spraying herbicides outside of the Stanton-Susquehanna No. 2-500 kV line right-of-way. Foot-patrols were requested to check areas sprayed along this right-of-way. Results of their inspection indicated that spraying was confined within the limits of the right-of-way.

2.3 CULTURAL RESOURCES ISSUES

In accordance with Title 36, Code of Federal Regulations, Part 800, Protection of Historic and Cultural Properties, the Licensee has taken efforts to mitigate any impacts from either plant construction or operation to sites eligible for inclusion to the National Register of Historic Places.

REFERENCES

- 2.1-1 American Fisheries Society, Northeastern Division Newsletter, Volume 4, Number 2, February 1987.
- 2.1-2 Restoration of American Shad to the Susquehanna River, Annual Progress Report - 1986, Susquehanna River Anadromous Fish Restoration Committee, February 1987.
- 2.1-3 Final Environmental Statement related to the operation of Susquehanna Steam Electric Station, Units 1 and 2, Docket Nos. 50-387 and 50-388, Pennsylvania Power and Light Co. and Allegheny Electric Cooperative, Inc., U.S. Nuclear Regulatory Commission, June, 1981.